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PATENT SPECIFICATION

1,022,267



DRAWINGS ATTACHED

1,022,267

Inventor: ALBERT WILLIAM HOBBS*Date of filing Complete Specification:* June 1, 1962.*Application Date:* June 1, 1961.

No. 48659/63.

(Divided out of No. 990,677.)

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COMPLETE SPECIFICATION

Transportable Tower Cranes

We, STAR CRANES LIMITED, a British Company, of 72 Brighton Road, Horsham, Sussex, England, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to transportable tower cranes.

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made to the accompanying drawings, in which:—

Figure 1 is a diagrammatic side view of the base-supporting structure of a tower crane which is ready for transport by road;

Figure 2 is a view as seen in the direction of the arrow A in Figure 1;

Figure 3 is a diagrammatic side view of the base-supporting structure shown in Figures 1 and 2 as it appears when the crane is ready for operation on a site;

Figure 4 is a diagrammatic side view of a further embodiment of a base-supporting structure of a tower crane;

Figure 5 is a plan view of the embodiment shown in Figure 4; and

Figure 6 is a diagrammatic view of the tower crane in process of erection on site.

In Figures 1 and 2 a base-supporting structure 1 of the crane includes four hydraulic jacks or outriggers 2, and connected to the movable member 2a of each jack 2 is a spreader plate 3. Connected to the frame work of the structure 1 are two endless crawler tracks in the form of caterpillar tracks 4 (the word "Caterpillar" is a Registered Trade Mark), and two road wheels 5 as shown.

The base-supporting structure 1 also includes two A-shaped frames 6 which support an outer tower 7 of the crane at two pivots 8. The tower 7 and the structure 1 are shown as they appear when the crane is ready to be transported by road, with the base-supporting struc-

[Price 4s. 6d.]

ture entirely supported on the road wheels 5.

Figure 3 shows a view similar to that shown in Figure 2 but the road wheels 5 have been removed and the spreader plates 3 are now in contact with the ground, the caterpillar tracks being a small distance above the ground. The outer tower 7 is also shown in its raised position bolted to the two frames 6 by means of bolts 9.

Figures 4 and 5 show a modification of the embodiment shown in Figures 1 to 3 in which the two caterpillar tracks 4 have been replaced by four caterpillar tracks 11. Each caterpillar track 11 is mounted on the movable member 2a of its respective jack 2. These caterpillar tracks enable the crane to be moved on a site and additionally the jacks are independently operable to level the base structure 1 on the site. Road wheels (not shown) are provided as before.

Figure 6 shows the tower crane with the base-supporting structure 1 in the position it occupies when the crane is to be used and with the outer tower 7 already erected and bolted in the vertical position. A jib consisting of two parts 30 and 30a hinged at the point 31 is shown in the same position with respect to the tower as it occupies when the crane is to be transported by road.

When the tower crane is to be moved from one site to another by road the inner tower 37 (Figure 6) is telescoped into the outer tower 7 (Figure 6) and the counter-jib and jib are clamped or tied alongside the tower 7. The tower 7 and the jib and counterjib are in a substantially horizontal position and the ends 55 and 56 of the frames 39 and 38 are secured to the point 54, and the road wheels 5 are attached as shown in Figure 1. A transporting lorry is attached by conventional means to the head of the crane (parts 42 and 43 in Figure 6), and the whole crane can be transported by road with the hoisting rope already reeved for hoisting

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the jib. The base-supporting structure 1 with its road wheels acts as a trailer behind the lorry.

On arrival at the site the crane is towed by the lorry to a location which is as close as possible to the location at which the crane is to be used. The movable members 2a of the jacks 2 are then pumped down until the road wheels are raised from the ground, and the road wheels are removed. The members 2a are then slowly raised until the caterpillar tracks 4 contact the ground, and the whole base-supporting structure is then levelled by means of the jacks.

The crane is usually moved on the site by means of its caterpillar tracks 4 or 11 when the tower has been raised to its vertical position but before the jib and counterjib have been raised to their horizontal positions. To do this the movable members 2a of the hydraulic jacks 2 are raised vertically so that the base-supporting structures 1 of the tower rests only on the tracks and the crane is moved as desired using the tracks. When the desired operating position of the crane has been reached the movable members of the hydraulic jacks are again pumped down so that the tracks are raised slightly from the ground and the base-supporting structure 1 of the crane rests on the movable members of the jacks.

Attention is directed to specification 990677 in which there is described and claimed a transportable tower crane comprising a tower, a base-supporting structure for the tower, two crawler tracks for travel over ground disposed on opposite sides of the base-supporting

structure, and two road wheels mounted to turn about an axis that is parallel to the longitudinal dimensions of the crawlers and between the crawlers, the road wheels serving for support of the base-supporting structure alternative to the crawlers.

WHAT WE CLAIM IS:—

1. A tower crane having road wheels whereby it can be transported from site to site, endless crawler tracks whereby it can be located on site, and outriggers whereby it can be levelled on site.

2. A tower crane having removable road wheels whereby it can be transported from site to site, outriggers operable to take the load off said wheels to permit their removal, and non-removable endless crawler tracks operable to locate the tower crane on site when said outriggers are released after removal of said wheels.

3. A tower crane as claimed in either of the preceding claims in which said wheels are located to permit movement of the crane in a direction at right-angles to that permitted by said endless crawler tracks.

4. A tower crane as claimed in any of the preceding claims in which the road wheels and endless crawler tracks are arranged flanking each other in transverse planes.

5. A tower crane as claimed in any of the preceding claims and comprising a single pair of road wheels.

6. A tower crane as claimed in any of the preceding claims and comprising a single pair of endless crawler tracks.

HUGHES & YOUNG,
Agents for the Applicant.

1022267 COMPLETE SPECIFICATION
3 SHEETS *This drawing is a reproduction of
the Original on a reduced scale*
Sheet 1

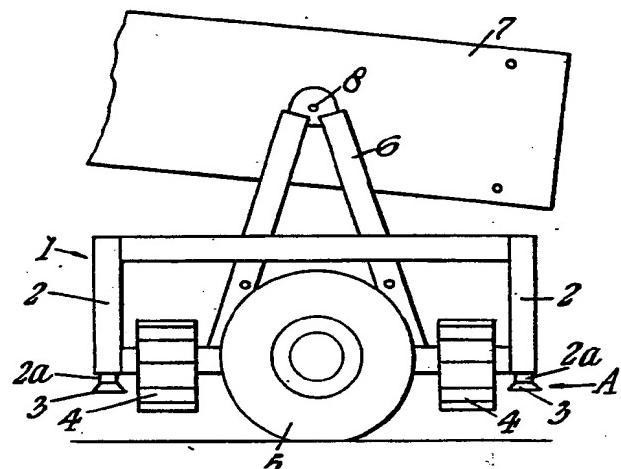


Fig.1.

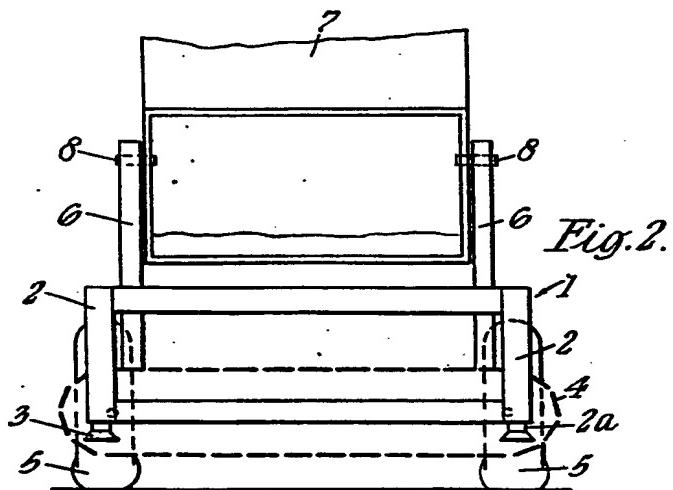


Fig.2.

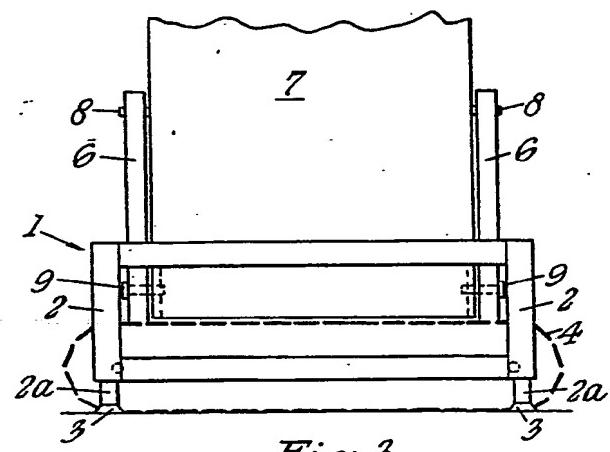


Fig. 3.

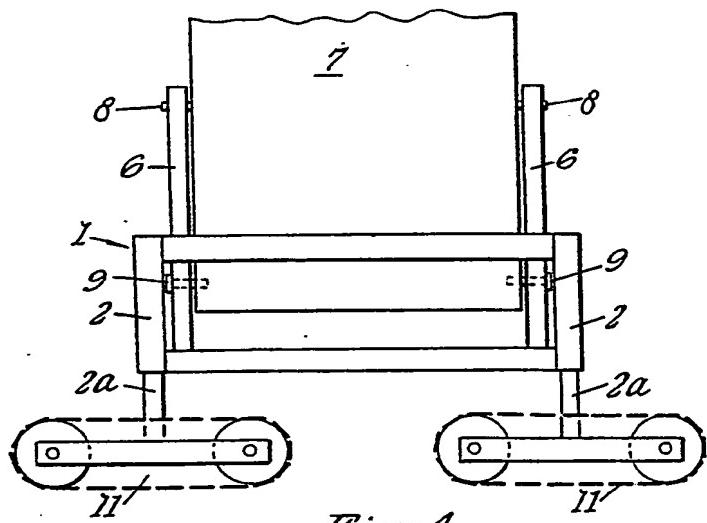


Fig. 4.

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COMPLETE SPECIFICATION

3 SHEETS

*This drawing is a reproduction of
the Original on a reduced scale
Sheets 2 & 3*

8
6
—
9
2
4
—
2a
3

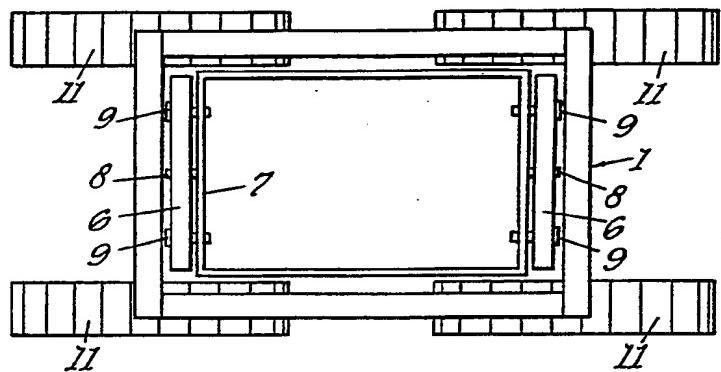


Fig. 5.

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8
6
—
9
2
—
2a
II

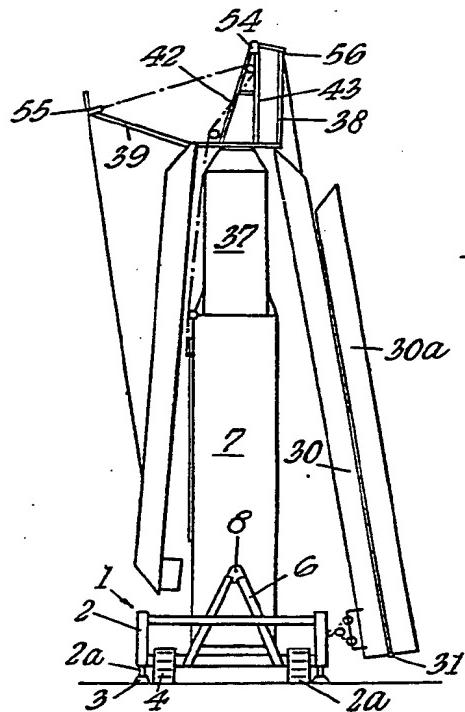


Fig. 6.

102267 COMPLETE SPECIFICATION
3 SHEETS This drawing is a reproduction of
the Original on a reduced scale
Sheets 2 & 3

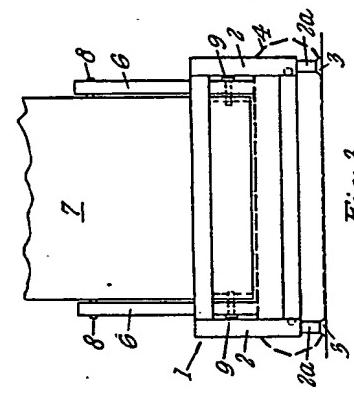


Fig. 3.

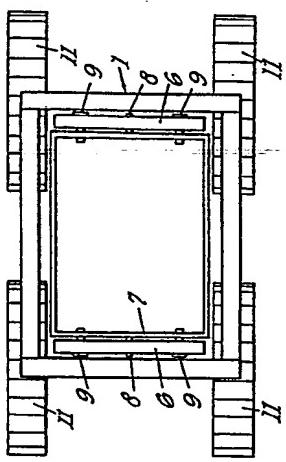


Fig. 5.

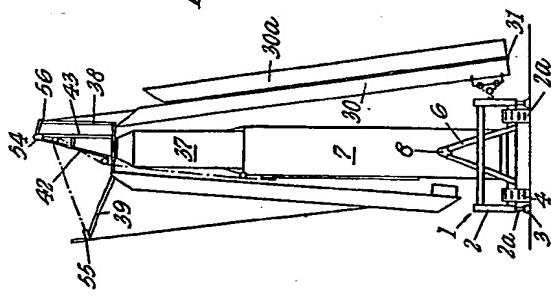


Fig. 6.

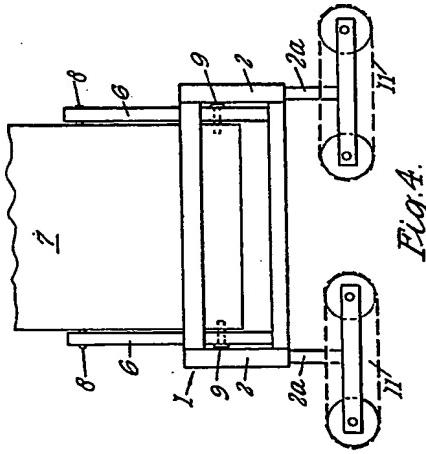


Fig. 4.